

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of: Rasmussen et al.

Application No.: To be assigned

Group Art Unit: To be assigned

Filed: Concurrently herewith

Examiner: To be assigned

For: CELLULASE PREPARATION COMPRISING AN ENDOGLUCANASE ENZYME

**PRELIMINARY AMENDMENT**

Assistant Commissioner for Patents  
Washington, DC 20231

Sir:

Prior to examination of the above-identified application on the merits, kindly amend the application as set forth below.

**IN THE SPECIFICATION:**

At page 1, after the title, insert

**--CROSS-REFERENCE TO RELATED APPLICATIONS**

This application is a continuation of U.S. application no. 09/189,028 filed November 10, 1998, which is a divisional of U.S. application no. 08/389,423 filed February 14, 1995, which is a continuation of U.S. application no. 07/946,489 filed November 25, 1992, which is a 35 U.S.C. 371 application of PCT/DK91/00123 filed May 8, 1991, and claims priority under 35 U.S.C. 119 of Danish application 1159/90 filed May 9, 1990 and 736/91 filed April 22, 1991, the contents of which are fully incorporated herein by reference.--

At page 2, line 17, delete "homogenous" and insert --homogeneous--.

At page 2, after line 30 and before the heading "Detailed Disclosure of the Invention," insert the following:

**--BRIEF DESCRIPTION OF THE DRAWINGS**

Figure 1 illustrates the creation of the *Aspergillus* expression vector pToC 68.

Figure 2 illustrates the cloning strategy for the cloning of the full-length cDNA molecule encoding the 43 kD endoglucanase from *Humicola insolens* strain DSM 1800.--

At page 4, lines 22-23, delete "shown in the appended Sequence Listing ID#2" and insert --SEQ ID NO:2--.

At page 5, lines 14-15, delete "shown in the appended Sequence Listing ID#4" and insert --SEQ ID NO:4--.

At page 5, lines 30-31, delete "as shown in the appended Sequence Listings ID#1 or ID#3" and insert --SEQ ID NO:1 or SEQ ID NO:3--.

At page 8, line 11, delete "culturing a a" and insert --culturing a--.

At page 15, line 10, delete "compostion" and insert --composition--.

At page 16, lines 19-20, delete "shown in the appended Sequence Listing ID#2" and insert --SEQ ID NO:2--.

At page 17, line 16, delete "aminoacids" and insert --amino acids--.

On page 18, at the end of line 20, please insert --(SEQ ID NO:5)--.

On page 18, at the end of line 21, please insert --(SEQ ID NO:6)--.

On page 18, at the end of line 24, please insert --(SEQ ID NO:7)--.

On page 18, at the end of line 25, please insert --(SEQ ID NO:8)--.

At page 19, lines 17-18, delete "shown in the appended Sequence Listing ID#1" and insert --SEQ ID NO:1--.

On page 19, at the end of line 20, please insert --(SEQ ID NO:9)--.

On page 19, at the end of line 21, please insert --(SEQ ID NO:10)--.

On page 19, at the end of line 22, please insert --(SEQ ID NO:11)--.

On page 19, at the end of line 23, please insert --(SEQ ID NO:12)--.

On page 19, at the end of line 24, please insert --(SEQ ID NO:13)--.

On page 19, at the end of line 26, please insert --(SEQ ID NO:14)--.

On page 19, at the end of line 28, please insert --(SEQ ID NO:15)--.

At page 21, line 31, delete "cellulase" and insert --endoglucanase, a fragment was first obtained by--.

At page 22, line 22, delete "efficiency" and insert --efficiency--.

At page 24, line 21, delete "exluding" and insert --excluding--.

At page 25, line 4, delete "ologonucleotides" and --oligonucleotides--.

At page 27, line 21, delete "electroparated" and insert --electroporated--.

At page 27, line 35, delete "kDcellulase" and insert --kD cellulase--.

On page 28, at line 31, before ")", please insert --(SEQ ID NO:16)--.

At page 32, line 14, delete "Clycerol" and insert --Glycerol--.

On page 34, at the end of line 13, please insert --(SEQ ID NO:17)--.

On page 34, at the end of line 15, please insert --(SEQ ID NO:18)--.

On page 34, at the end of line 17, please insert --(SEQ ID NO:19)--.

On page 34, at the end of line 19, please insert --(SEQ ID NO:20)--.

On page 34, at the end of line 21, please insert --(SEQ ID NO:21)--.

On page 34, at the end of line 23, please insert --(SEQ ID NO:22)--.

On page 34, at the end of line 25, please insert --(SEQ ID NO:23)--.

On page 34, at the end of line 28, please insert --(SEQ ID NO:24)--.

On page 34, at the end of line 31, please insert --(SEQ ID NO:25)--.

On page 34, at the end of line 33, please insert --(SEQ ID NO:26)--.

On page 35, at the end of line 2, after "TTA", please insert --(SEQ ID NO:27)--.

On page 35, at the end of line 3, after "AGC", please insert --(SEQ ID NO:28)--.

On page 35, at the end of line 5, please insert -- (SEQ ID NO:29)--.

On page 35, at the end of line 6, please insert -- (SEQ ID NO:30)--.

On page 35, at the end of line 7, please insert -- (SEQ ID NO:31)--.

On page 35, at the end of line 8, please insert -- (SEQ ID NO:32)--.

On page 35, at the end of line 9, please insert -- (SEQ ID NO:33)--.

At page 43, line 3, delete "homogenous" and insert --homogeneous--.

Please delete pages 47-56 and insert the attached Sequence Listing (pages 47-62) and renumber the subsequent pages in the specification accordingly.

#### **IN THE CLAIMS:**

Cancel claims 1-31 without prejudice. Add new claims 32-55 reading as follows:

- 32. A composition comprising:
- (A) a detergent effective amount of one or more surfactants; and
  - (B) from 0.0001 to 2.5 percent by weight, based upon 100 percent by weight of said composition, of a fungal cellulase, said fungal cellulase comprising an endoglucanase, wherein said fungal cellulase is free of CBH activity.--

- 33. A composition as defined in claim 32, having a pH ranging from 3 to 10.--
- 34. A composition as defined in claim 32, wherein said fungal cellulase is homogeneous.--
- 35. A composition as defined in claim 32, wherein said fungal cellulase is produced by a genetically modified organism.--
- 36. A composition as defined in claim 35, wherein said genetically modified organism is a fungus.--
- 37. A composition as defined in claim 32, wherein said endoglucanase component has a CMC-endoase activity of at least about 50 CMC-endoase units/mg of total cellulase.--
- 38. A composition comprising:  
    (A) a detergent effective amount of one or more surfactants; and  
    (B) from 0.0001 to 2.5 percent by weight, based upon 100 percent by weight of said composition, of a fungal cellulase, said fungal cellulase consisting essentially of an endoglucanase, wherein said fungal cellulase is free of CBH activity.
- 39. A composition as defined in claim 38, having a pH ranging from 3 to 10.--
- 40. A composition as defined in claim 38, wherein said fungal cellulase is homogeneous.--
- 41. A composition as defined in claim 38, wherein said fungal cellulase is produced by a genetically modified organism.--
- 42. A composition as defined in claim 41, wherein said genetically modified organism is a fungus.--
- 43. A composition as defined in claim 38, wherein said endoglucanase component has a CMC-endoase activity of at least about 50 CMC-endoase units/mg of total cellulase.--
- 44. A composition comprising:  
    (A) a detergent effective amount of one or more surfactants; and

(B) from 0.0001 to 2.5 percent by weight, based upon 100 percent by weight of said composition, of a fungal cellulase, said fungal cellulase consisting of an endoglucanase, wherein said fungal cellulase is free of CBH activity.

--45. A composition as defined in claim 44, having a pH ranging from 3 to 10.--

--46. A composition as defined in claim 44, wherein said fungal cellulase is homogeneous.--

--47. A composition as defined in claim 44, wherein said fungal cellulase is produced by a genetically modified organism.--

--48. A composition as defined in claim 47, wherein said genetically modified organism is a fungus.--

--49. A composition as defined in claim 44, wherein said endoglucanase component has a CMC-endoase activity of at least about 50 CMC-endoase units/mg of total cellulase.--

--50. A composition comprising:

(A) a detergent effective amount of one or more surfactants; and

(B) from 0.0001 to 2.5 percent by weight, based upon 100 percent by weight of said composition, of a fungal cellulase, said fungal cellulase comprising one or more endoglucanase component, wherein said endoglucanase component has a CMC-endoase activity of at least about 50 CMC-endoase units/mg of total cellulase, wherein said fungal cellulase does not degrade highly crystalline cellulose or cellobiose  $\beta$ -p-nitrophenyl, and wherein said fungal cellulase degrades amorphous cellulose to a mixture comprising cellobiose, cellotriose, and cellotetraose.--

--51. A composition as defined in claim 50, having a pH ranging from 3 to 10.--

--52. A composition as defined in claim 50, wherein said fungal cellulase is homogeneous.--

--53. A composition as defined in claim 50, wherein said fungal cellulase is produced by a genetically modified organism.--

--54. A composition as defined in claim 53, wherein said genetically modified organism is a fungus.--

#### REMARKS

Entry of this amendment is respectfully requested.

Claims 1-31 have been canceled without prejudice. Claims 32-54 have been added. Accordingly, claims 32-54 are pending and are at issue.

Support for new claims 32-54 can be found in the specification and claims as originally filed.

For example, the phrase "from 0.01 to 2.5 percent by weight, based upon 100 percent by weight of said composition, of a fungal cellulase" of new claims 32, 38, 44 and 50 is supported at page 9, lines 9 to 11:

*... "The detergent additive may suitably contain 1 – 500, preferably 5- 250, most preferably 10 – 100 mg of enzyme protein per gram of the additive";*

and further at page 11, lines 3 to 5:

*... "In general, it is most convenient to add the detergent additive in amounts of 0.1 – 5% w/w or, preferably, in amounts of 0.2 – 2% of the detergent composition" ...*

Thus, the detergent composition may comprise 0.1 – 5 % w/w of a detergent additive, i.e. from 0.001 to 0.05 gram of detergent additive per gram of detergent composition. The detergent additive may comprise 1-500 mg of (endoglucanase) enzyme per gram of additive, i.e. from 0.001 to 0.5 gram of enzyme per gram of additive.

Accordingly, the detergent composition may comprise enzyme in an amount of from (0.001 gram of detergent additive per gram of detergent composition x 0.001 gram enzyme per gram of detergent additive =) 0.000001 gram enzyme per gram of detergent composition or 0.0001% w/w of the detergent composition to (0.05 gram of detergent additive per gram of detergent composition x 0.5 gram enzyme per gram of detergent additive =) 0.025 gram enzyme per gram of detergent composition or 2.5% w/w of the detergent composition.

Cellulase activity of at least 50 CMC-endoase units/mg of protein (new claims 37, 43, 49 and 50) is disclosed in claim 2.

The pH interval 3-10 (new claims 33, 39, 45 and 51) is disclosed at page 16, lines 22 to 29.


Homogenous cellulase component (new claims and 34, 40, 46 and 52) is disclosed in claim 1.

Expression of a genetically modified cellulase in a fungal host cell (new claims 35, 36, 41, 42, 47, 48, 53 and 54) is disclosed at page 7, line 27, to page 8, line 1.

The specification has been amended to correct inadvertent typographical errors. Applicants enclose herewith the Sequence Listing for the above-captioned application. The computer-readable form in this application is identical with that filed in Application No. 08/369,423, the benefit of which is claimed under 35 U.S.C. 120. In accordance with 37 CFR 1.821(e), please use the only computer readable form filed in that application as the computer readable form for the instant application. It is understood that the Patent and Trademark Office will make the necessary change in application number and filing date for the computer readable form that will be used for the instant application. The content of the attached paper entitled "SEQUENCE LISTING" and of the diskette filed in the prior application is the same. No new matter is added.

It is believed that the claims are in condition for allowance, and a determination to that effect is earnestly solicited.

Respectfully submitted,

  
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